

# Umetco Minerals Corporation



P.O. BOX 1029  
GRAND JUNCTION, COLORADO 81502  
☎ (970) 245-3700

September 23, 2003

D. Wayne Hedberg, Permit Supervisor  
State of Utah Minerals Regulatory Program  
Department of Natural Resources  
Division of Oil, Gas and Mining (DOGM)  
1594 West North Temple, Suite 1210  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

RECEIVED  
SEP 29 2003  
DIV. OF OIL, GAS & MINING

Re: **Release of Surety, Calliham Mine, Permit Number M/037/023**

Dear Mr. Hedberg:

The Calliham mine is a large reclaimed underground uranium/vanadium mine located in Sections 28 and 33, Township 32 South, Range 26 East, in San Juan County, Utah. The mine was operated from 1973 to 1991, and was reclaimed in 2000. Operations began before reclamation laws were enacted, thus mine spoils were placed in drainages and topsoil was not preserved. During reclamation, waste rock was removed from the drainage and topsoil was salvaged from the site to enhance reclamation work.

Attached is a copy of *Effective Reclamation Techniques, Calliham Mine*, presented to the DOGM in 2001. This document details the reclamation construction at the site. Since 2001, Umetco has installed erosion control matting in sensitive areas and has monitored the site for vegetative growth and stabilization.

Paul Baker and Doug Jensen of the DOGM inspected the site on August 8, 2003. Vegetation is now well established and cattle, horses, elk and deer are grazing the site.

Umetco believes that reclamation requirements have been met at the site and requests release of the permit and financial responsibility at the site.

If you have any questions or need more information, please call Rahe Junge at (970) 256-8828.

Sincerely,

Curtis O. Sealy, P. E.  
Mines Reclamation Manager

c: Paul Baker (DOGM)  
Enclosure  
COS:WRJ:ASB:sas

# **EFFECTIVE RECLAMATION TECHNIQUES**

## **Calliham Mine**

Utah Division of Oil, Gas and Mining Permit M/037/023  
San Juan County, Utah

Umetco Minerals Corporation  
Grand Junction, Colorado

The Calliham Mine is a large underground uranium/vanadium mine in southeast Utah that operated from 1973 to 1991. Atlas Minerals Corporation obtained the original mine permit in 1977 and Umetco acquired the permit in 1988. The ore bodies were accessed by rubber tired equipment through a decline. Operations began before reclamation laws were enacted, and mine spoils were placed with little thought of future environmental considerations (Figures 1 and 3). Topsoil was not salvaged prior to mining, and mine spoils were placed in drainages. In 2000, using unique techniques to borrow topsoil onsite, Umetco successfully reclaimed the entire site to range land (Figures 2 and 4).

### **PRE RECLAMATION SITE CONDITIONS**

Figure 5 is an aerial view of the site before reclamation. Mine spoils were deposited southeast of the portal. The spoils approached drainages on both the east (auxiliary drainage) and south (main drainage) sides of the mine spoils pile, and an access road was constructed of mine spoils in the main drainage. The mine spoils pile also completely blocked a small basin (north basin). Two large low-grade ore piles (A and B) and an ore pad to the southwest of the mine spoils pile were also developed (Figures 3 and 6). No topsoil was salvaged during the creation or operation of any of the spoils piles.

### **MINE RECLAMATION**

#### **Objectives**

Umetco operates under Union Carbide Corporation Responsible Care<sup>®</sup> standards, directing company employees to conduct projects in a manner that protects the environment along with the health and safety of employees and the public. The Calliham reclamation project was a challenge for Umetco. How could the site be effectively reclaimed with the obstacles presented by the site conditions? Prior to reclamation the following decisions were made:

- Where feasible, remove mine spoils from drainage pathways.
- Stabilize the slopes of the mine spoils and low-grade piles sufficiently to protect the drainage pathways and surrounding area.
- If possible, obtain available topsoil to cover the mine spoils and low grade piles to assist in the long-term stabilization of the site without disturbing new ground.

## **Drainage Areas**

As an enhancement to the state reclamation plan, Umetco moved the toe of the mine spoils pile at least 20 feet from drainage pathways. Mine spoils in the existing access road were removed and placed on the spoils pile. A new access road was constructed outside of the drainage area. The small area of the north basin was predominantly bedrock with some trees and shrubs but contained little topsoil. The area was cleared and backfilled with mine spoils, eliminating the basin. Backfilling of the north basin area provided additional fill area allowing the removal of spoils from other drainage pathways.

## **Mine Spoils Pile**

Exceeding reclamation plan requirements, all slopes were recontoured to a minimum of 4H:1V to curb erosion and enhance vegetation. Backfilling the north drainage area allowed enough fill area to minimize the steepness of the slopes. Backfilling of the north drainage also allowed the spoils pile to be blended into the existing slope and surrounding area.

## **Stockpiles and Topsoiling**

Umetco salvaged topsoil during site reclamation using techniques that can be utilized at other reclamation projects where similar conditions exist. Initially, the ore pad was excavated and placed on Stockpile B, and that stockpile was consolidated. Concurrently, the mine spoils pile was being contoured. After completing mine spoils contouring, topsoil was borrowed from beneath the ore pad area and used to cover the mine spoils pile (Figure 7). The borrow area was then backfilled with material from Stockpiles A and B. In addition, trenches were dug around the toes of all piles to collect topsoil (Figure 8). The spoils pile slopes were backfilled into the trenches, and the topsoil was used to cover the piles. Backfilling the stockpiles into the borrow area and toe trenches effectively removed their visual presence.

## **Seedbed Preparation**

All disturbed areas were disked and seeded with standard farming equipment then imprinted with a machine that creates small holes approximately 8 inches square and 6 inches deep. The machine (Figure 9) was designed and constructed by Umetco. It is attached to a dozer and rolled across the seeded area. The small holes catch and concentrate stormwater protecting slopes from erosion and promoting vegetative growth.

## **PRESENT SITE CONDITIONS**

Reclamation of the site also included the closure of mine ventilation raises and the portal, the removal of power lines, the mine plant and mine related debris, and the reclamation of two evaporation ponds.

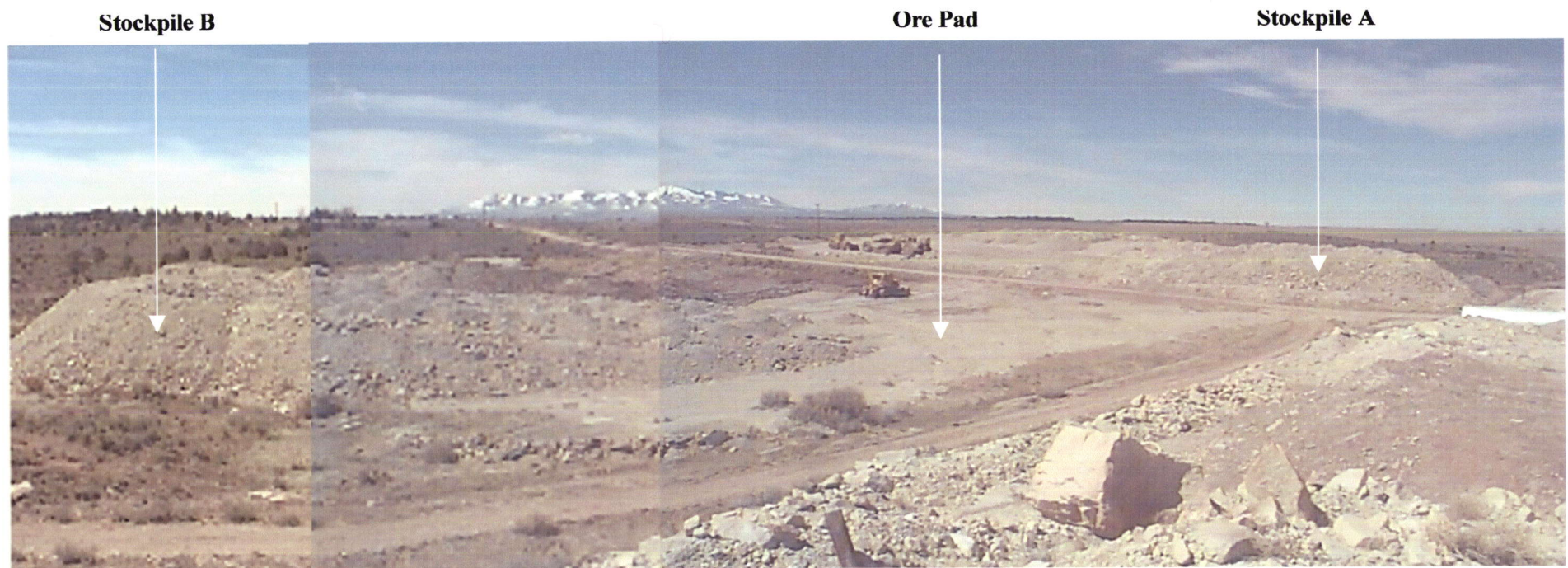
Backfilling the trenches and borrow area with mine spoils effectively made Stockpiles A and B disappear. All disturbed areas were covered with at least 6 inches of topsoil, and all topsoil was borrowed from previously disturbed areas (Figures 7 and 8). The site was seeded in the fall of 2000 and should be ready for post-mine land use in two years. Thus the Calliham Mine site (having no salvaged topsoil) was successfully reclaimed leaving no sign of previous mining activity.



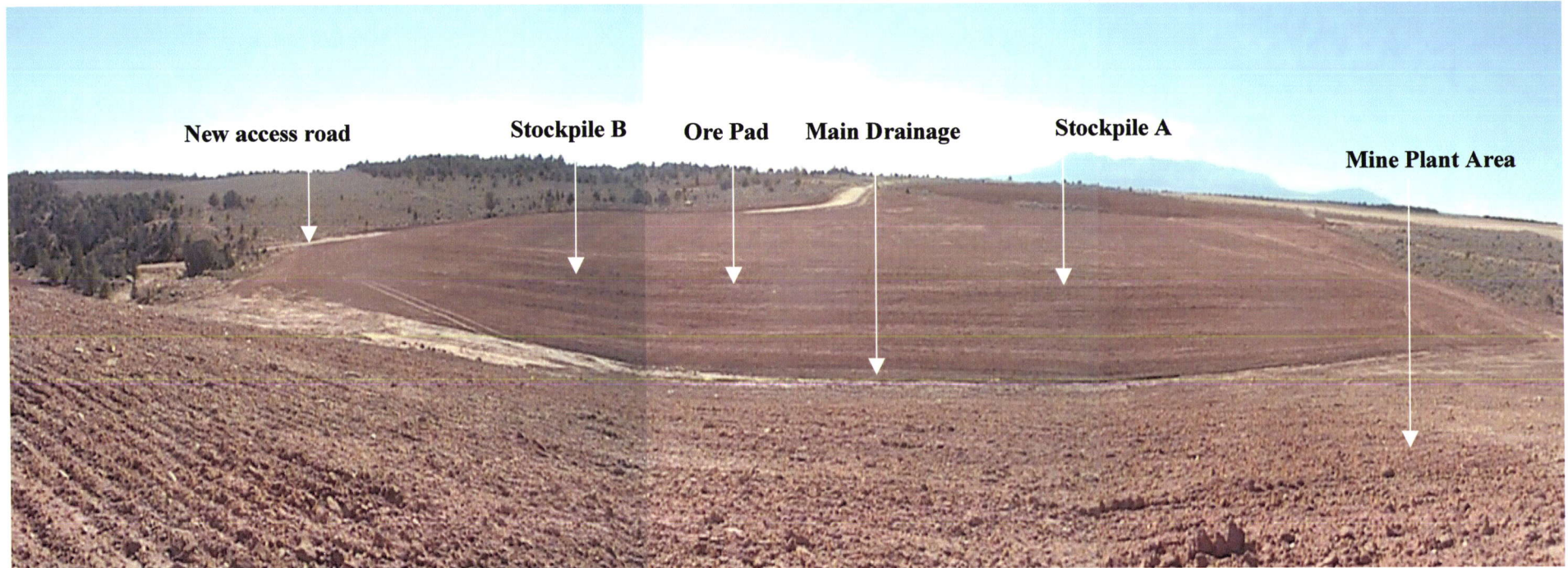
**Figure 1** Stockpile B and Mine Spoils Pile (looking northeast)



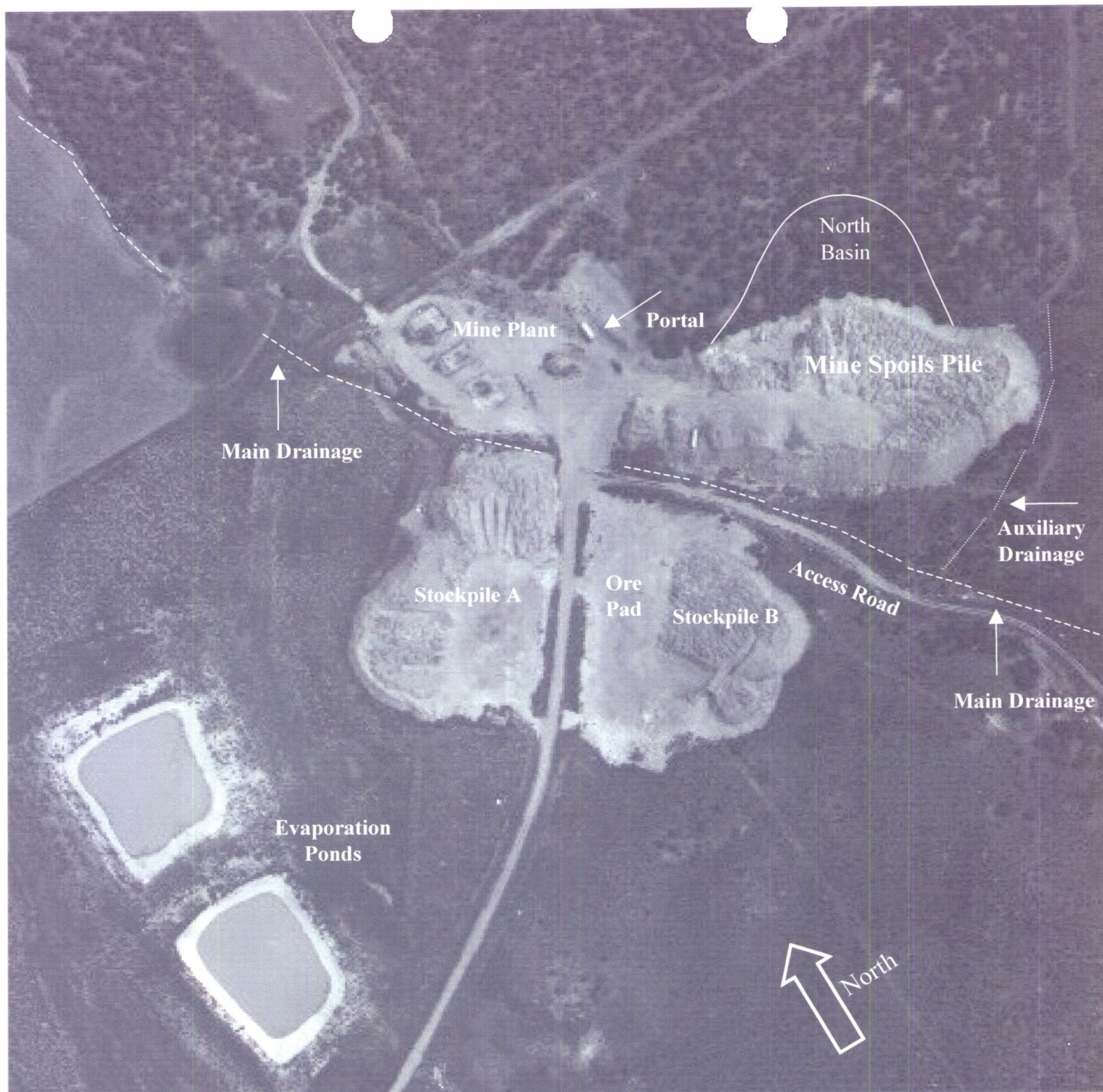
**Figure 2** Stockpiles A and B, Drainage, Mine Spoils Pile Area (looking north after reclamation)



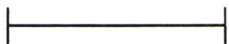
**Figure 3** Stockpile A, Ore Pad, Stockpile B, Access Road and Main Drainage



**Figure 4** View from Mines Spoils Pile Area (after reclamation looking southwest)



Scale: 1 inch = 250 feet



**Figure 5**  
**Calliham Mine**

Permit M/037/023 -- San Juan County, Utah  
**1992 Aerial View**



**Figure 6**  
Stockpile A, Portal, and Mine Plant Area  
(looking west)



**Figure 7** Salvaging topsoil from borrow area underneath ore pad location



**Figure 8** Salvaging topsoil by trenching around the toe of the mine spoils pile



**Figure 9** Imprinter